

Flight

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE AERO CLUB OF THE UNITED KINGDOM.

No. 35. Vol. I.]

AUGUST 28TH, 1909.

[Registered at the G.P.O.
as a Newspaper.]

[Weekly, Price 1d.
Post Free, 1½d.]



RHEIMS AVIATION WEEK.—General view (below) of the flight grounds, showing the "popular enclosure." In the distance will be seen one of the huge corner posts, which indicate the points at the corners of the enormous aerodrome round which the competitors have to fly. Above is the scoring board, giving the performances of the several competitors (by number) in the various events.

CONVERSION BY SIGHT.

THROUGHOUT the past week the greatest object-lesson and the most convincing that has been afforded yet concerning the achievement of mechanical flight has been in almost continuous progress at Rheims. The value of it to the new movement is absolutely inestimable. As two days' racing have to be accomplished to bring the meeting to a close, this is scarcely the moment to pause to review the performances from the point of "breaking record," for it may well be that to-day's and to-morrow's efforts will see all previous achievements eclipsed. At the moment we are concerned with another aspect of the meeting. A week ago, when on the threshold of it, we were considering that at last a flying machine race-meeting had actually materialised, and that the vast section of the public that does not take any intimate interest in the mighty problem of aerial locomotion was about to be convinced of the possibilities and of the extraordinary stage of present practical achievement by the promptest of all processes, ocular demonstration.

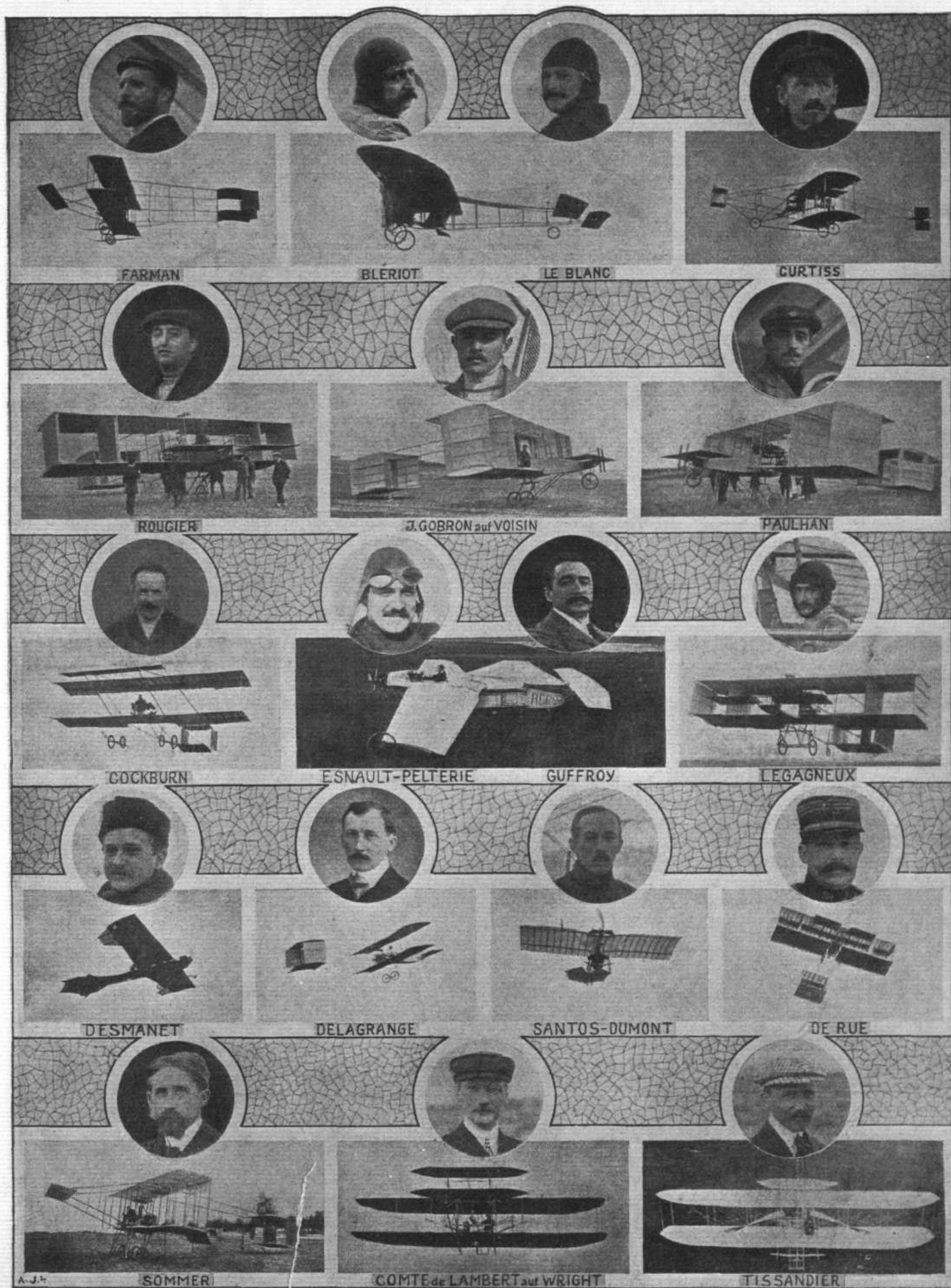
To-day we may do something more than look forward. We may look backward, too. During the last six days history has been made. The weather has been by no means uniformly favourable. The competitors, or rather their machines, have not behaved in every case with clockwork regularity. That is what the Cockney calls "no indebtment." Boat racing on the surface of the water is a sport that has been in vogue from the earliest times of which we have record. Yet whenever half-a-dozen craft are pitted each against the rest, there are always a goodly percentage of breakdowns from one cause or another. Masts break, oars break, the boats get swamped, and so forth. It is so even with the living competitors. A racehorse or a steeplechaser must be regarded as a physically-perfect machine, yet the percentage that do not finish in a given race, or that figure very poorly in it, is certainly quite high. In a word, the essence of all sport is the ever present possibility of the unexpected happening. The fact that that has occurred to sundry competitors at the Rheims Aviation Meeting is a point of scarcely any importance or consideration. Nobody would gainsay that to-day the motor car is not a practical vehicle; but let any long-distance race be organised for such machines, and the proportion that will not come to grief in the course of the competition, mostly from some trivial cause, will be less than 50 per cent. In the case of the flying machines that are at present figuring in the great meeting in France, the percentage of successful flights has been higher than that.

This meeting is, in a sense, a greater test than are most competitions. Usually, in a horse race, a bicycle race, a motor car race, or any other sort of race, there is the single effort to be made and the thing is done with. But in the case of this Rheims meeting we find the same men and machines figuring day after day, morning and afternoon, for eight consecutive days at a spell. Surely that is a very remarkable thing. How very different would be the tale of all horse, motor, sailing, or other races if they consisted in repeating the effort day after day for eight days. Victories would go to far other ones than those who carry them under the present system. So we find it in the aerial contests that have been going forward this week. To take but a single example, early in the competitions the Curtiss biplane set up an European speed record which M. Louis Bleriot easily bettered the next day on a monoplane.

What is the meeting teaching the public? Firstly, it

is demonstrating beyond a shadow of doubt a very essential point that has been brought out in these columns many times already, namely, that mechanical flight does not consist in any one single style of machine, but is a principle that can be exploited in a variety of details of design, so that there may be as many types of aeroplanes as there are styles of water craft or of horse-drawn vehicles. At present the difference between one flyer and another is scarcely so much in the matter of size—albeit, there is a wide variety between the enormous sustaining surfaces of the Cody biplane or the Antoinette monoplane and the small Bleriot monoplane—as in the various features of design. One man maintains stability and effects turning by warping the wing extremities, another moves the whole of each wing independently of the other, a third has fixed sustaining surfaces and auxiliary flaps, while a fourth employs minor planes, the angles of tilt of which can be altered at will. Some have a single surface, others two superposed planes, and yet others employ three-decker machines. Again, some have to fit their aeroplanes with a variety of ingenious devices in the form of springs for absorbing shocks, while other designers have found out how to dispense entirely with any means of absorbing shock. In a word, already it has been proven that man has acquired the main principles of mechanical flight, otherwise practical machines could not be designed in such a variety of fashions. If we were proceeding on merely acrobatic principles it would be found that we should be able to fly on one, or at most two, different types of machines. Instead, there are a wide variety, and as yet there are scarcely two alike, for different screws or different motors are employed for one of a given type and another aeroplane of the same make and design.

The Rheims meeting marks an epoch in the history of mechanical aerial locomotion. It is the first occasion on which a wide variety of machines has been brought together, and on which one has been pitted against the other day after day, so that one day the monoplane is to the fore and the next day the biplane takes the lead; while the fact that many of the competitors have been practising on flyers for a few weeks only, reveals that the management of them can be acquired as quickly as one learns to drive a motor car. Nor were motor cars, in an equally early stage of that movement, as reliable as aeroplanes have been proving themselves at the Rheims meeting. Indeed, quite apart from bettering performances in regard to speed, height of flight, and so forth, one finds that the meeting serves to demonstrate quite a number of points as to the practical utility of such machines. For example, there was some doubt as to whether or not one flying machine would be able to pass another very close without the one upsetting the other by the displacement of air, or by the suction caused by the propellers and so forth. At Rheims we have seen during the past week that in a race between a monoplane and a biplane the single-surface machine has flown under the two-decker, and in such a position has actually succeeded in forging ahead. Now we know now that the close passing of one machine by another, whether the one above the other or side by side, is possible with safety. These points have been brought out throughout the world in telegrams that have been published by the Press. The result is that none who read can scoff any longer. The age of flight is the age we live in.



RHEIMS AVIATION WEEK.—Some of the leading aviators and their machines entered for this great historical event.

Automobil Welt.

RHEIMS AVIATION MEETING.



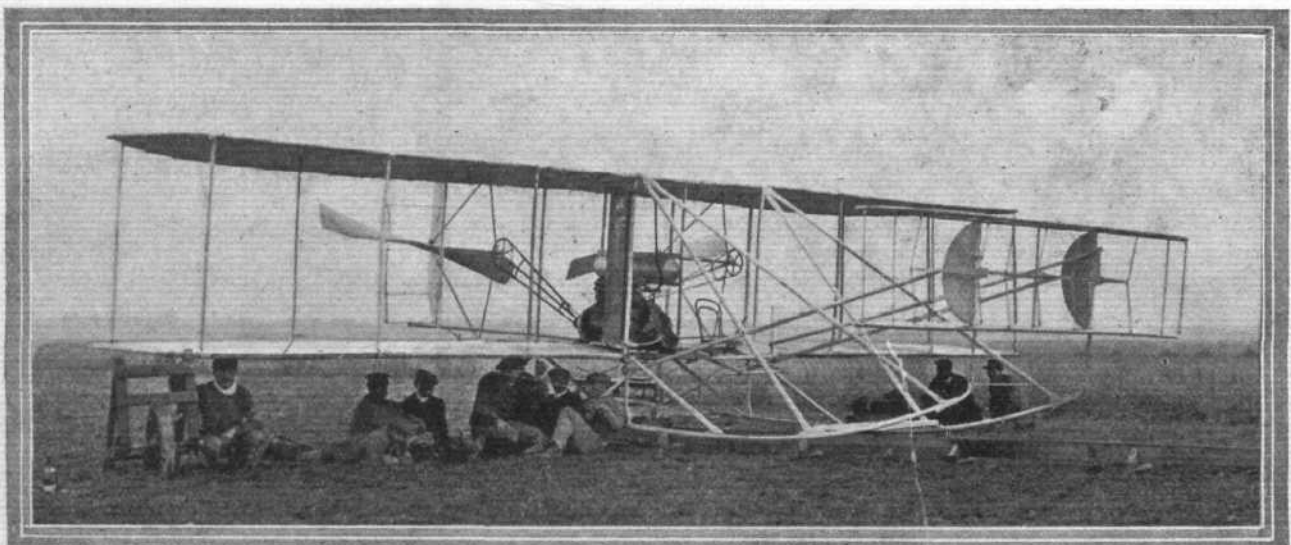
WHAT THE APPROACH WAS LIKE TO AND FROM THE GRAND STAND AT THE RHEIMS AVIATION MEETING.—Owing to the heavy rains the mud was ankle deep in many places, and some unique and awkward scenes, under the circumstances, especially amongst the ladies, were witnessed.

The Opening Day.

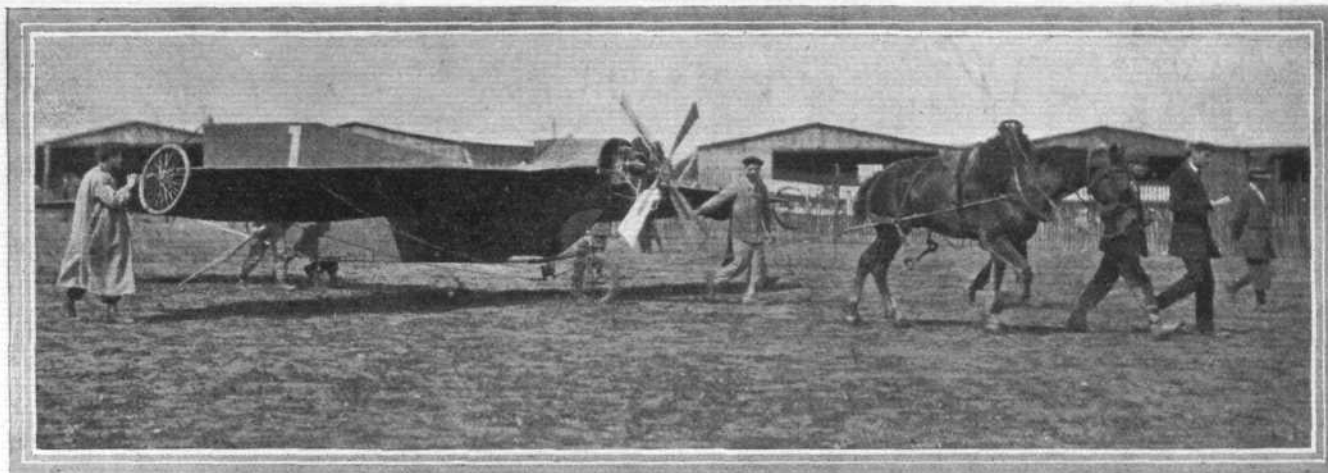
ANYTHING more unpropitious than the weather conditions under which the Rheims aviation meeting opened it would be difficult to imagine. During the previous night and early morning rain had been falling heavily, and on turning out of doors it was found that on the flag-staffs in the Place Royale and elsewhere black flags were displayed, intimating that flying was impossible. Enthusiasm was not so easily quenched. Many, heeding neither the weather nor the black flag, wended their way to the plains at Betheney. Matters looked less promising there. Mud was hardly the word to apply to the sticky, chalky substance which had formed itself into a veritable quagmire, ankle-deep in places, on the special "road" which had been made leading to the grand stand. At

times some quaint scenes were witnessed in the effort to annex as little as possible of the Betheney soil. Some relief was later afforded by the laying down of planks over the more frequented points used by the public, so that it became possible to reach the enclosure without getting one's clothes absolutely ruined. Several of the motor cars, however, fared pretty badly, getting stuck in the soft mud, and having to be dragged out by horses. As things ultimately turned out, the crowds were rewarded for their optimism, for all in good time the weather cleared, and the programme as officially laid down was proceeded with, in spite of strong winds and heavy showers.

The first event was the French Eliminating Trials for the Gordon-Bennett Race. For this there were twenty



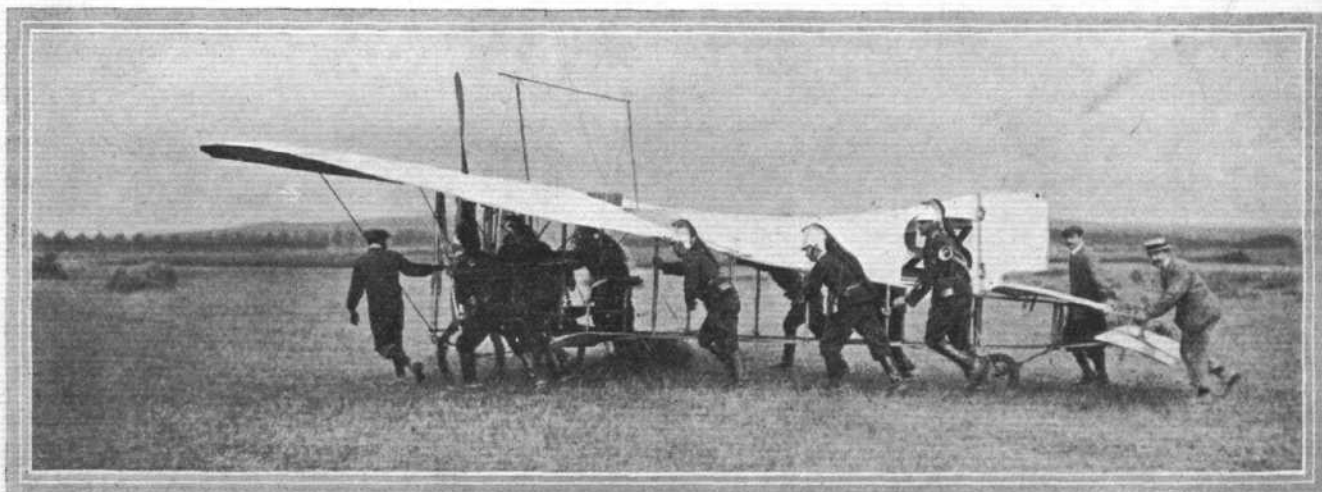
Taking shelter under M. Lefebvre's Wright flyer (No. 25) during a rainstorm at the Rheims Aviation Meeting.



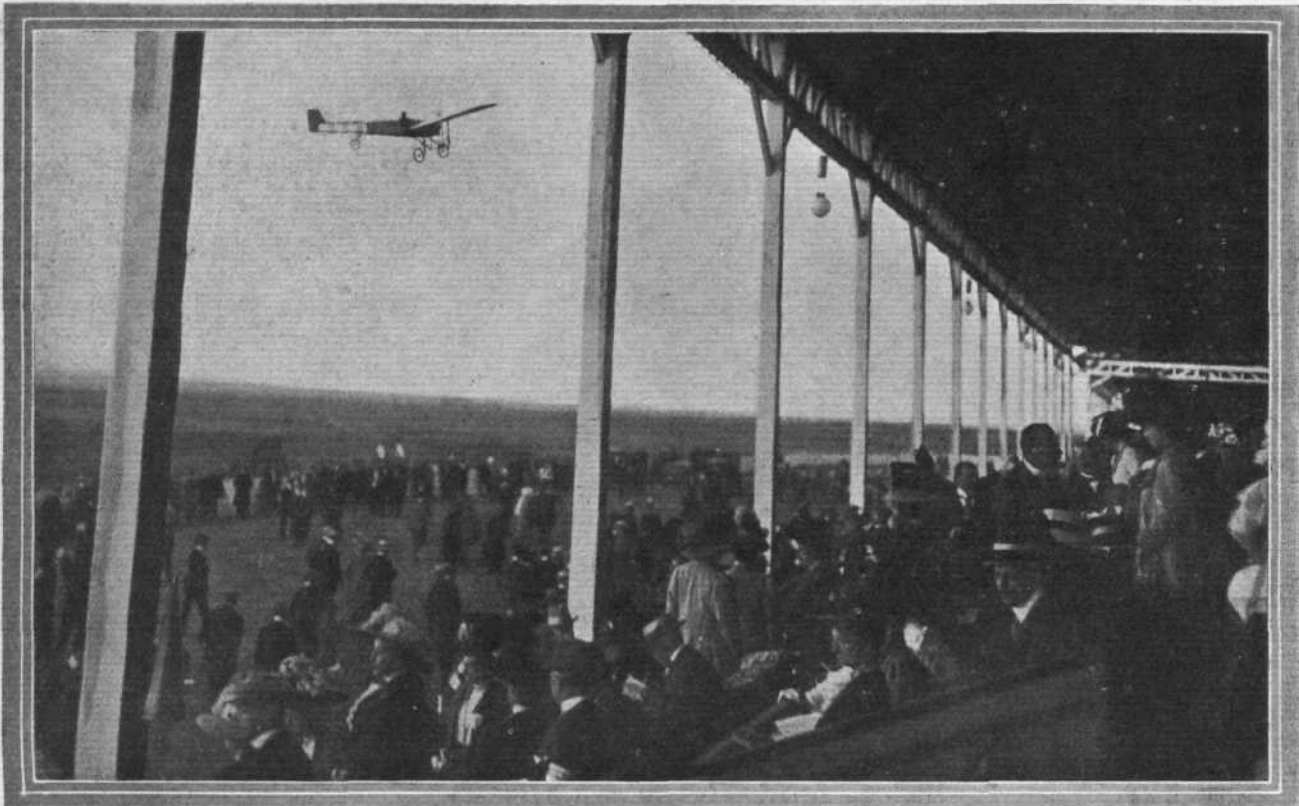
ONE OF THE METHODS ADOPTED AT THE RHEIMS AVIATION MEETING FOR TAKING THE MACHINES UP TO THE STARTING LINE.—The monoplane in our picture being hauled along is one of the R.E.P. flyers.

entries, and lots were drawn for starting order, each being allowed a quarter of an hour to get away. First out to the line was one of the red R.E.P. monoplanes, but this was unable to rise, and the first to actually make a start was Tissandier, on a Wright flyer, just before eleven o'clock. He only remained up for 1 min., however, and was followed by Bleriot on one of the little cross-Channel monoplanes. He managed to cover about $2\frac{1}{2}$ kiloms., and then Latham had a try. His machine bore the number 13, and to this was attributed his failure to keep going for more than about 500 yards. Lefebvre's turn came next, and he made the best attempt, very nearly completing two laps of the 10 kilom. course. Capt. Ferber (de Rue) and others made attempts but could not get off the ground. All this time a nasty gusty wind of about twenty miles an hour was harassing the aviators, and at noon a heavy shower of rain did not improve the position. So it came about that when the time for finishing the trials arrived at two o'clock no one had bettered Lefebvre and Bleriot's performances, and they were accordingly announced as the first two French representatives for the Gordon-Bennett Race. The third, it was decided, should be selected according to the pace made in the speed tests in the afternoon, and this secured for Latham the third place, whilst as reserves Tissandier, Lambert, Paulhan, and Sommer, in the order named were appointed.

A heavy storm at five o'clock made it appear that further flying would be out of the question that day. But quick changes were the order of the day, and half an hour later the weather broke, and immediately all was animation amongst the aviators, who proceeded to bring out their machines for the speed trials. Latham was the first away, he being rapidly followed by others, until the wonderful and unprecedented spectacle was witnessed of seven machines in the air at one time. Five, including Tissandier, Lambert, Lefebvre, Paulhan and Sommer, succeeded in covering the 30 kiloms. for the speed prizes, the three Wright machines and their pilots doing justice to their master by securing the three first places. Moreover, it was vastly interesting to note that the difference between Tissandier, who was first, and Lefebvre and Lambert, who were bracketed second, was only $1\frac{2}{3}$ secs. In addition to the above, Latham, on his Antoinette, twice made a single circuit, and Cockburn, on his Farman, once, the honour of fastest lap time going to Lefebvre, with 8 min. $58\frac{1}{2}$ secs. The longest flight of the day was that of Lefebvre, who remained in the air for 41 mins., and executed some daring manoeuvres, which roused the spectators to enthusiasm. Incidents of intense interest were momentarily occurring, the utter novelty of the entire proceedings rendering the most trivial occurrence of moment. A machine dropped down here and there, only to have its place filled by another



ANOTHER METHOD OF BRINGING A FLYER TO THE STARTING POINT.—M. Bleriot's No. XII passenger-carrying monoplane is the machine in the photograph.



M. Bleriot in full flight, on one of his monoplanes, past the grand stand at the Rheims Meeting.

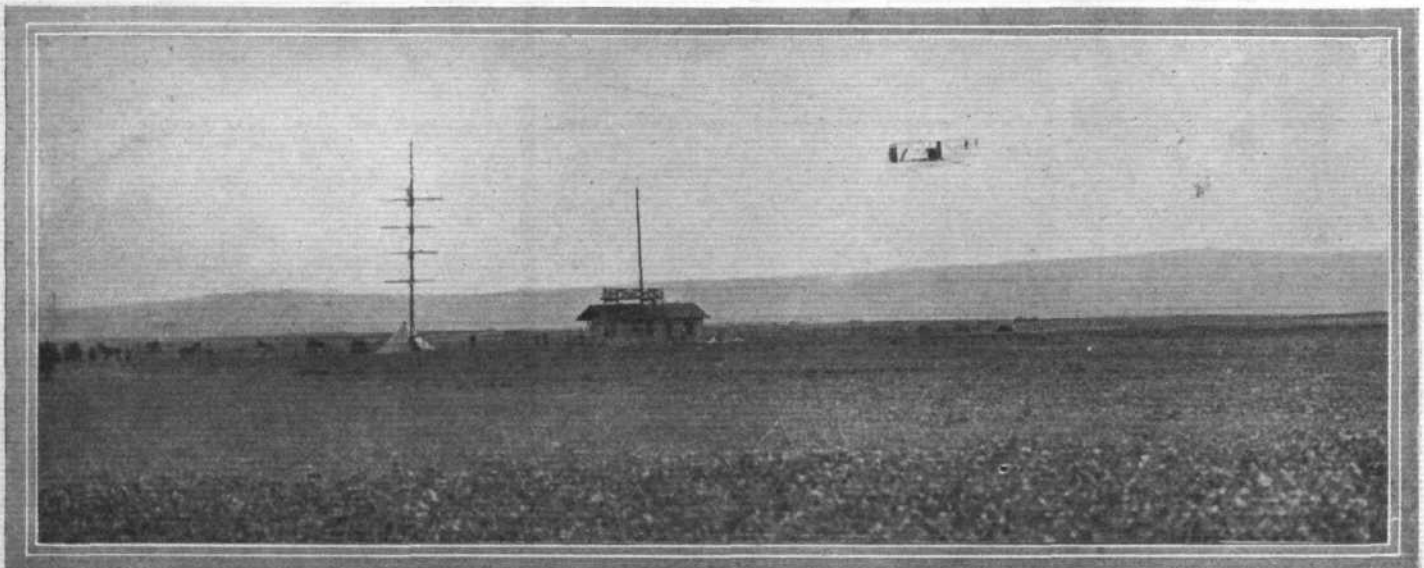
one, which in its turn, after swooping round for a time, would give place to the next. Motor troubles seemed to be the most fruitful cause of stoppages. Enthusiasm knew no bounds when the crowd were treated to one or two turns of racing, as when Tissandier overhauled and passed Bunau-Varilla, as seen in our photograph on p. 523. Bleriot, too, caused a little flutter of excitement by charging a stack of wheat sheaves, resulting in a damaged propeller. Altogether the total distance covered in their flights by the various "bird-men" during the day totalled to 309 kiloms.

Among the spectators were the Right Hon. Lloyd George and Sir Henry Norman, who had motored from Boulogne, stopping the previous night at Compiègne. The Chancellor of the Exchequer was intensely impressed,

and did not hesitate to express a wish that such a meeting could be held on Salisbury Plain or some other convenient spot in the British Isles. It is to be hoped that he will be able to impart some of his enthusiasm to other members of the Cabinet, so that aviation may receive a little more encouragement in Great Britain. Sir Henry Norman, who was equally impressed, gave vent to his feelings by expressing the opinion that the world was that day witnessing the birth of a new epoch of human development.

Monday's Events.

What a contrast to the opening morning was the second day's dawn. On the Monday morning all was fair and calm, and to all appearance weather after the aviator's heart was in store. Bleriot was up betimes



A FLIGHT AT THE RHEIMS AERODROME BY M. LEFEBVRE, THE MOST POPULAR AVIATOR OF THE MEETING, ON HIS WRIGHT BIPLANE.—M. Lefebvre is just passing round the Judges' box and the telegraph installation.

giving his big monoplane a trial run soon after 6 a.m. by traversing one circuit of the course. Nothing further of importance occurred during the morning except the arrival of the dirigible "Colonel Renard," which M. Kapferer had sailed over from Meaux in a little over $1\frac{1}{2}$ hours, and a flight by M. Paulhan of not quite five circuits of the course. About midday the wind became somewhat gusty, and Bunau-Varilla and one or two others who ventured out failed to accomplish anything very startling. Bunau-Varilla got blown off his course and landed in a field of oats, while M. Fournier was placed *hors de combat* by a gust of wind which caused him to land precipitately on one of his wings, crushing it, the damage being, however, quickly repaired. This was the day of the qualifying trials for the Grand Prix, and the other event was attempts to beat record for the lap time. A start was made at 4.30 p.m., when Lefebvre was first away, quickly followed by Paulhan. Lefebvre covered 21.2 kiloms. in 20 mins. $14\frac{2}{5}$ secs., when he decided to come down, while Paulhan kept going until 56 kiloms. had been covered in 58 mins. $48\frac{1}{5}$ secs. Several of the competitors also attacked the circuit record, and Bleriot succeeded in reducing it to 8 mins. $42\frac{2}{5}$ secs., but his victory was shortlived, as Curtiss later, in his American biplane, brought it down to 8 mins. $35\frac{3}{5}$ secs. One con-

dition of the Grand Prix was that competitors had to fly a reasonable distance on or before Monday to qualify to take part in the trials on Wednesday, Thursday and Friday. Under this regulation 18 actually qualified.

Before the close of the day's proceedings Lefebvre again provided the crowd with a series of thrills by flying over and under and circling round Paulhan, who was at a height of about 25 feet. Arising out of this, when making one of his dashes under his rival's machine, he swooped down so suddenly and so close to *terra firma* that one of the vast brigade of Press photographers who swarmed over the flying ground, and in whose direction Lefebvre was travelling in a bee line, in not unnatural terror flung himself flat on the ground, not realising what was happening, and fearing that his last moment had suddenly arrived. A couple of seconds relieved his anxiety, but a brother "photo fiend" had recorded the incident in the meantime.

Tuesday's Progress.

Black flags had once more to be hoisted on Tuesday morning, the strong winds blowing rendering flying out of the question. Later on angry and ominous clouds gathered over the ground, and it looked as though a wet reception awaited M. le President, for this was the day

RHEIMS AVIATION MEETING.—Table of General Details of the Entered Machines (Approximate Figures).

Pilots.	Make of Flyer.	Supporting Surface.	Weight, Flying Order.	Stability.	Chassis.	Engine.			Propellers.			
						Motor and H. P.	Cooling.	Ignition.	Make.	Blades.	Diameter.	R. P. M.

BIPLANES.												
P. Tissandier ...	Wright	sq.m.	kgs.	Warping	Runners	h.p.	25 4-cyl. B. and M.	Water	H.T. mag.	2 Wright	m.	450
"	"	50	470	"	"	"	"	"	"	"	2'5	450
Comte de Lambert	"	50	470	"	"	"	"	"	"	"	2'5	450
"	"	50	470	"	"	"	"	"	"	"	2'5	450
Schreck	"	50	470	"	"	"	"	"	"	"	2'5	450
E. Lefebvre	Ariel Co.	40	450	"	"	"	"	"	"	"	2'5	450
"	"	40	450	"	"	"	"	"	"	"	2'5	450
H. Farman	Farman	40	560	Ailerons (tips)	Runners and wheels	50 4-cyl. Vivinus	"	"	"	1 Chauviere	2'6	1,200
"	"	40	560	"	"	"	"	"	"	"	2'6	1,200
R. Sommer	"	40	560	"	"	50 5-cyl. Gnome	Air	"	"	"	2'6	1,100
G. B. Cockburn	"	40	560	"	"	"	"	"	"	"	2'6	1,100
J. Gobron	Voisin	50	560	Automatic	Wheels	55 4-cyl. Gobron	Water	2 mag.	"	1 Voisin	2'0	1,150
Delagrangé	"	50	560	"	"	50 8-cyl. Antoinette	"	Accu.	"	"	2'0	1,100
De Rue (Capt. Ferber)	"	50	560	"	"	"	"	"	"	"	2'0	1,100
Paulhan	"	50	560	"	"	50 5-cyl. Gnome	Air	Mag.	"	"	2'0	1,200
Bunau-Varilla	"	50	560	"	"	50 8-cyl. E.N.V.	Water	"	"	"	2'0	1,200
Rougier	"	50	560	"	"	55 8-cyl. Renault	Air	"	"	"	2'0	1,200
Fournier	"	50	560	"	"	50 4-cyl. Itala	Water	"	"	"	2'0	1,100
Sanchez Besa	"	50	560	"	"	50 8-cyl. Antoinette	"	Accu.	"	"	2'0	1,100
Legagneux	"	50	560	"	"	55 4-cyl. Gobron	"	2 mag.	"	"	2'0	1,150
Glenn Curtiss	Curtiss	24	320	Ailerons (tips)	"	30 3-cyl. Curtiss	Air	Accu.	"	1 Curtiss	2'8	1,300
Breguet	Breguet	50	640	Warping	"	55 8-cyl. Renault	"	Mag.	"	1 Breguet	3'5	1,200
Klutymans	Klutymans	"	"	"	"	"	"	"	"	"	"	"
Fernandez	Fernandez	50	480	Warping	Wheels	50 8-cyl. Antoinette	Water	Accu.	"	1 Chauviere	2'0	1,100

MONOPLANES.												
L. Bleriot	Bleriot	22	550	Ailerons (tips)	Wheels	40 3-cyl. Anzani	Air	Accu.	"	1 Chauviere	2'7	500
"	"	22	620	"	"	50 8-cyl. E.N.V.	Water	H.T. mag.	"	"	2'7	500
"	"	14	340	Warping	"	25 3-cyl. Anzani	Air	Accu.	"	"	2'08	1,400
L. Delagrangé	"	14	340	"	"	"	"	"	"	"	2'08	1,400
H. Latham	Antoinette	50	520	Ailerons (tips)	Runners and wheels	50 8-cyl. Antoinette	Water	"	"	1 Antoinette	2'20	1,100
Demanest	"	50	520	"	"	"	"	"	"	"	2'20	1,100
Buchonnet	"	42	490	"	"	"	"	"	"	"	2'20	1,100
Bailly	"	50	520	Warping	"	"	"	"	"	"	2'20	1,100
R. Esnault-Pelterie	R.E.P.	20	450	"	Wheels	35 7-cyl. R.E.P.	Air	H.T. mag.	"	1 R.E.P.	4'0	1,400
"	"	20	450	"	"	"	"	"	"	"	4'0	1,400
M. Guffroy	"	20	450	"	"	"	"	"	"	"	4'0	1,400
E. Laurens	"	20	450	"	"	"	"	"	"	"	4'0	1,400



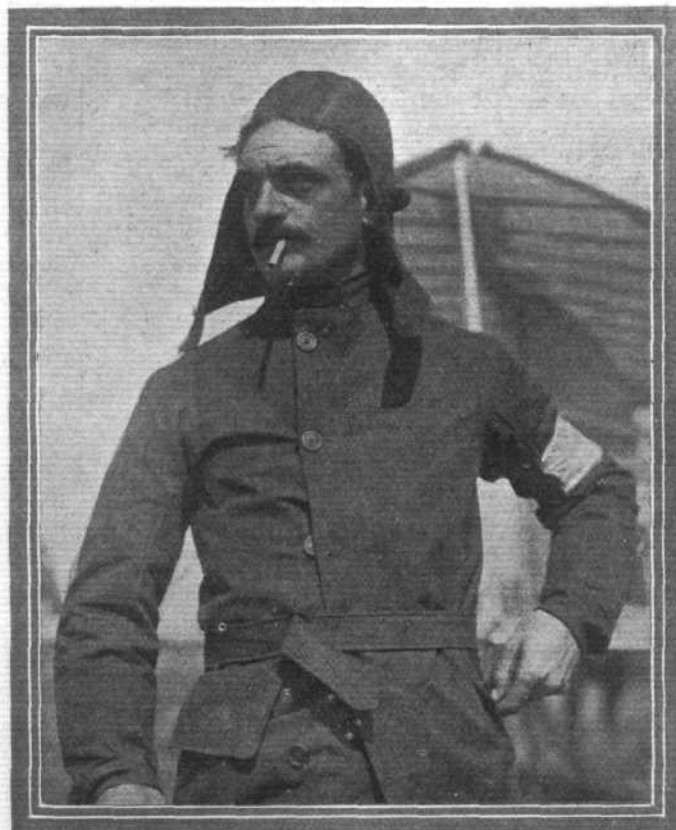
AT RHEIMS AVIATION MEETING.—Watching the "bird-men." From right to left, Mr. Lloyd George, Sir Henry Norman, Lord Northcliffe, and Mr. N. Chereau, who looks after M. Bleriot's affairs in Great Britain.

he had chosen for his first visit. Just before four o'clock, when President Fallières arrived, however, the weather improved somewhat, but flying was still impossible, so the President spent some time examining the various machines, and receiving their various designers and pilots. He also received the British deputation, headed by General French, and just before five took his seat in the grand stand.

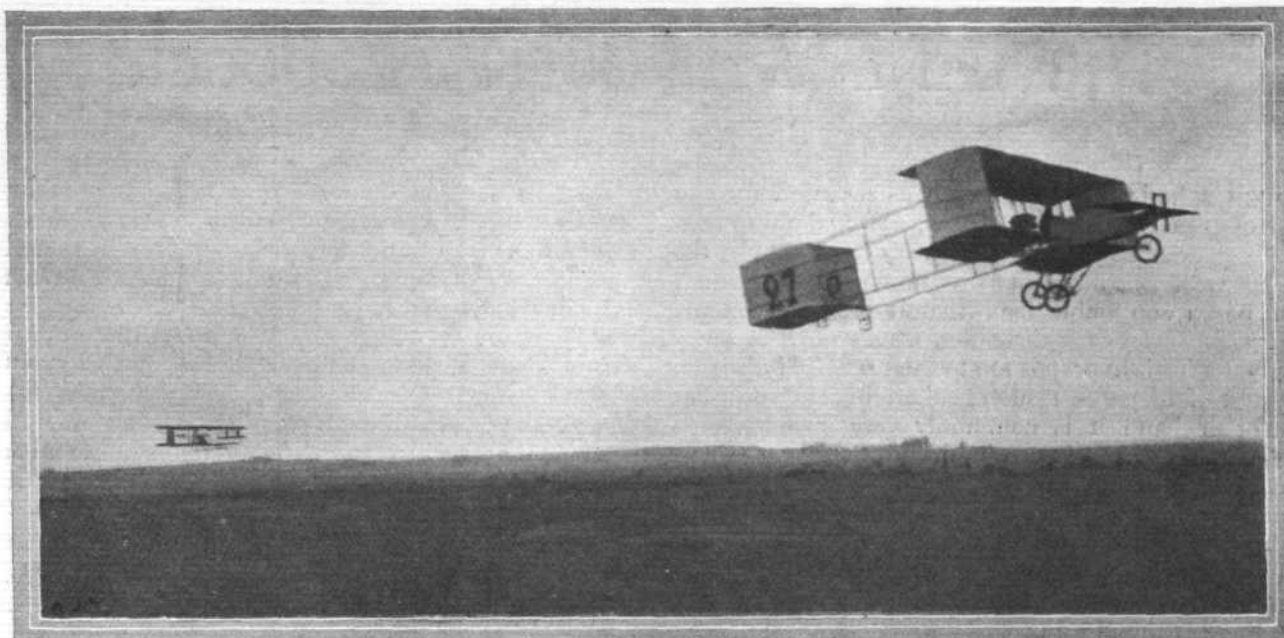
The starting of engines notified that flying was to be attempted, and in a few minutes Bunau-Varilla swept past the grand stand, waving his hat to the distinguished occupants. He, however, only remained up for a few minutes, when his place was taken by Paulhan, who managed to just complete his second lap as the Presidential party started back for the railway station. Altogether he completed three laps, but his time was a good way off the record, which was hardly surprising in view of the strong wind against which he had to contend. The only other aviator to make the three rounds was Latham, whose time was 30 min. 2 secs., but the time officially recorded against him was 5 per cent. more than that—31 min. 32½ secs. This "fine" was under the penalisation rule for his unfinished attempt on Sunday. While Latham was flying, Bleriot took a turn round for one lap, and by overhauling and passing his cross-Channel rival, demonstrated that he had easily the faster machine. Enthusiasm was intense when it was found that he had handsomely beaten the record, bringing it down to 8 min. 4½ secs. Lefebvre was again flying in the dusk, and once more performed some extraordinary evolutions, the most impressive being a number of sharp double turns and "8's" in front of the grand stand.

Wednesday's Racing.

On Tuesday night Rheims had been *en fête*, or at least as gay as it could be in face of a heavy downpour of rain. Next morning the black clouds presaged anything but the best weather conditions. However, the wind was very light, and as on several occasions more than one aviator has shown an indifference to rain, it was vainly hoped that some one would venture into the central blue. Until nearly four o'clock, when Paulhan started off on a trial for the Grand Prix, and, as it turned out, made a wonderful performance by shifting the world's record for duration and distance a good way further on, there was nothing of moment to vary the monotony of waiting to record. He did not come down till after half-part six, when he had been up 2h. 43m. 24½s., and had traversed 131 kiloms. (82 miles). This is over 6 mins. ahead of Sommer's recently-made unofficial record, and more than 23 mins. better than Wilbur Wright's previous world's record. Naturally, of course, this performance overshadowed all the others during the afternoon, and the scenes around the youngaviat or upon his return to earth were somewhat disconcerting to his dignity—at least, from a Britisher's point of view. While Paulhan had been pursuing the even tenor of his way, Latham and others had been making attempts to better the circuit times, and Fournier experienced a second tumble, this time much more serious than the first smash. He was flying at a good height and had travelled about half-way round the track, when his Voisin machine, struck by a miniature whirlwind, suddenly swerved, turned over once or twice, and then crashed sideways to the ground. Fournier, with the usual good luck of an aviator, escaped serious injury,



M. LEFEBVRE, PROBABLY THE MOST POPULAR AVIATOR AT THE RHEIMS MEETING.—M. Lefebvre, although one of the least experienced, measured by length of practice, was right in the front in daring and successful flying on his Wright machine, and headed the team representing France for the Gordon-Bennett Cup. His very recent and first efforts in Holland, which we recorded in detail, will no doubt be called to mind by our readers.



RHEIMS AVIATION MEETING.—A race in the air between M. Bunau-Varilla on a Voisin biplane and, in the distance, M. Tissandier on one of his Wright flyers.

and returned to his shed riding the horse of a friendly gendarme. His machine was badly broken up, the tail being severed from the main body. Latham, on his third attempt, succeeded in covering the 30 kiloms., his time, however, being slower than the record for the Prix de Vitesse. While he was in the air a splendid rainbow appeared in the sky, and the spectacular effect of this, in conjunction with the Antoinette dragon-fly, was most impressive and not likely to be soon forgotten by those who were fortunate enough to witness it. In the twilight Curtiss tried to regain the honour of fastest time, and although he improved on his former speed, he could not lower Bleriot's record, whilst several aviators, including Delagrang, Rougier and Capt. Ferber (de Rue), were out, but nothing startling, in view of previous exploits, transpired. Truly is it that familiarity breeds, if not contempt in this case, at least indifference, and that very speedily. The marvellous of to-day is but the accepted of to-morrow.

Records Broken on Thursday.

A splendid day was experienced on Thursday, and the sensation was Latham's world's distance record of 152 kiloms. (96 miles), his speed also beating all previous

efforts, thereby bringing about the curious anomaly of not breaking the duration record. His time for the 150 kiloms. was 2h. 13m. 9 $\frac{3}{4}$ s. This splendid effort was made during the afternoon, and followed a preliminary canter of 70 kiloms., which he flew during the morning in 1h. 1m. 51 $\frac{3}{4}$ s.

In each case he was forced to come down owing to his petrol supply giving out, but his second marvellous flight easily placed him first for the Grand Prix.

During the long flight there were several exciting incidents. On one occasion Mr. Latham had the opportunity of racing with a passing train for some distance, while at another time he passed over Delagrang, who was flying round the course on his Bleriot.

Another thrill was afforded by Bleriot who carried a passenger during a couple of flights, while Curtiss completed four circuits of the course, and Mr. Cockburn also indulged in an exciting race with another passing train.

On Friday, Saturday and Sunday the finals of the various heat events constituted the programme, the Gordon-Bennett Race being reserved for to-day (Saturday).

RE-ARRANGEMENT

THE Army balloon establishment at Aldershot will shortly be re-organised, according to the *Daily Express*, by the separation of the instruction and construction departments.

It is also stated that the War Office will consult the Advisory Committee on Aeronautics regarding

AT ALDERSHOT.

the details of the change. In the event of it being impossible to obtain a military officer with sufficient knowledge and experience to supervise the manufacturing and experimental work of the establishment, it is suggested that the best civilian expert should be retained no matter what the cost.

A PATENT FIGHT IN AMERICA.

AMERICA is threatened with an aviation war as the Wright Brothers are taking legal proceedings against the Aeronautic Society, alleging that certain details of their Curtiss flyer infringe the Wright patents. In the bill of complaint filed in the Courts by the Wright Brothers, it is stated that their inventions are "of great value and utility, and constitute the first instance in the history of the countless attempts to produce flying machines

wherein a heavier-than-air machine ever made aerial flights, and wherein the machine was within the control and will of the operator, thus giving to the world the first machine to actually and successfully fly, being in this sense a creation or bodiment of a new art, and an epoch in aerial endeavour, human flight having been for ages a synonym for failure and impossibility."

THE LANE HYDROGEN PRODUCER.

By HOWARD LANE.

ALTHOUGH spherical balloons, such as are used for the purpose of pleasure trips, are, on the score of cheapness, inflated with coal gas from the ordinary town supply, the lifting power of this medium is so moderate, only about 30 lbs. per 1,000 cubic feet, that it is to all intents and purposes useless for dirigibles, which have to carry much greater loads in proportion to their size. Hydrogen, the lightest of all gases, is alone suited to this work, but on the other hand it is commonly very expensive, in fact, it is often so costly as to be prohibitive.

Much attention has therefore been directed by engineers and chemists to the cheapening of the production of hydrogen, and before proceeding to describe the special process which is my own invention, it may be as well to briefly refer to the methods hitherto in vogue. Firstly, there is the old and well-known chemical process by which hydrogen is evolved when sulphuric acid is added to zinc or iron turnings. In this reaction the water becomes decomposed, yielding free hydrogen, while its oxygen combines with the metal to form a sulphate that remains in solution. The other principal method of obtaining hydrogen is that known as the electrolytic process, in which water is split up into its elements by the passage of an electric current. In the former chemical process the hydrogen produced is liable to impurities, and in the latter it is exceedingly costly, unless the circumstances are especially favourable for obtaining cheap electric power.

There is another system for obtaining hydrogen, in which water in the form of steam is decomposed by red-hot iron in a retort, and it is a modification of this principle that underlies the action of the Lane producer.

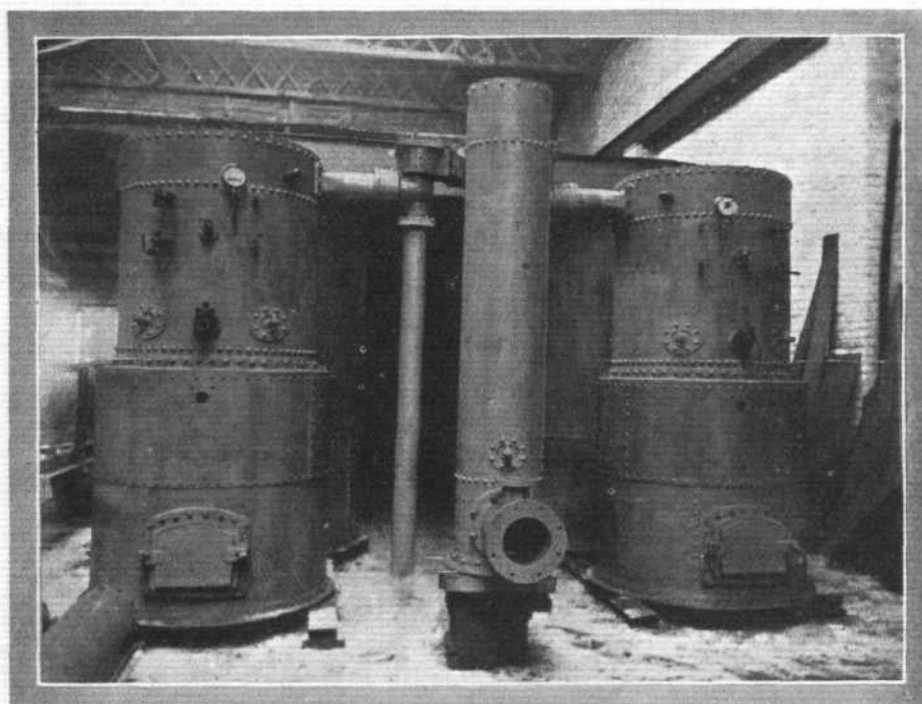
By the original steam process the oxydised iron needs to be removed from the retorts at each operation, and replaced by fresh metal, but by the Lane process the iron preparation which takes its place remains permanently in use, and there is an attendant saving of trouble and expense.

As soon as the iron is oxydised or rendered incapable of decomposing more steam, it is reduced, or de-oxydised *in situ* by intermittently passing over it a cheap producer gas of high calorific power. The action of the producer gas is to abstract the oxygen from the oxide, thus converting the medium to the metallic condition, and rendering it once more capable of decomposing steam. Thus, by means of alterations controlled by suitable valves, the process goes on indefinitely, while the only materials consumed are the water and the fuel from which the cheap producer gas is made.

One of the special features of the Lane system is the use of a preparation of iron instead of the turnings commonly employed for such purposes. Turnings have been found not permanently satisfactory, and the material

which is used in their place is iron oxide mixed with certain other ingredients which act catalytically and render the iron more sensitive. Before this material will act it must, of course, be initially reduced, that is to say, the de-oxydisation must precede the oxydation.

There are also other details on which the success of the main plant depend. The contents of the retorts, for instance, need special manipulation to prevent them becoming inert through the gradual accumulation of sulphur abstracted from the producer gas. Moreover, the material itself needs a change of treatment, as for some obscure reason after continued use it ceases to be active. These and other details have had to be studied and developed as difficulties have arisen, but one and all have now been overcome, and in the latest plants it is possible to obtain hydrogen of 98 per cent. purity at a cost, in large installations, of from 3s. 6d. to 5s. per 1,000 cubic feet.



The Lane Hydrogen Plant.

The Lane plant in its most recent form, of which the accompanying photograph is an illustration, comprises producers for the reducing gas, washers, purifiers, fan, steam-engine, retort-furnace, condenser, washer and purifiers for the hydrogen and gas-holder. The plants are made in sizes capable of producing 500 cubic feet up to 10,000 cubic feet per hour. The initial cost of the plant is naturally fairly high, although the gas produced is cheap. On account of the massive nature of the apparatus it is desirable that the installation should be established in a permanent position, suitable for its local use, or from which the hydrogen can be conveniently transported under pressure in cylinders. Plants of this description have been erected in St. Petersburg, Vienna, Paris, London and Newcastle, and another capable of producing 5,000 cubic feet per hour is in course of erection at Warrington.

AERO CLUB OF THE UNITED KINGDOM.

OFFICIAL NOTICES TO MEMBERS.

Fixtures for 1909.

August 22-29 Rheims Aviation Week.
 August 28 ... Gordon-Bennett Aviation Cup, Rheims.
 October 3 ... Gordon-Bennett Balloon Race, Zurich.

Committee Meeting.

A meeting of the Committee was held on Friday, the 20th inst., when there were present: Mr. Roger W. Wallace, K.C., in the chair, Mr. Martin Dale, Mr. J. T. C. Moore-Brabazon, the Hon. C. S. Rolls, Mr. J. Lyons Sampson, Harold E. Perrin, Secretary.

New Members.—The following new Members were elected:—

Henry Jacob Delaval Astley.	Henry Knox.
John A. Banister.	Lieut. George Frederick Montagu,
Guy Vernon Baxendale.	R.N.
S. F. Cody.	Captain Hugh Iltid Nicholl.
Le Baron de Beville.	Sydney Norris.
Le Baron Henri de Beville.	Auguste Oddenino.
Baron de Forest.	George F. Underwood.
Lady Dunne.	G. W. Warne.
Miss Dunne.	Mrs. Wrohan.
E. Marshall Fox.	

Flying Visit to Rheims.

The Aero Club have arranged with the South-Eastern and Chatham Railway Company to run a special excursion to Rheims on Saturday evening, enabling passengers to spend fourteen hours there, and witness the final competitions, which take place on Sunday.

The train leaves Charing Cross at 9 p.m., arriving Rheims early Sunday morning. The return train leaves Rheims 7.40 Sunday evening, arriving London 5.45 Monday morning. The special reduced fares available only by these trains will be:—

First class, 57s.; second class, 40s.; third class, 27s.

Tickets to be taken at Charing Cross Station.

Frankfort Exhibition.

Members visiting the Frankfort Exhibition will find the Grand Hotel, Frankfurter-Hof, a very comfortable hotel. Members are advised to book their rooms in advance. Single rooms from 7 marks, double rooms from 14 marks.

⊕ ⊕

THE HUTCHINSON

WE have now received samples from Messrs. Hutchinson of their range of six rubber-proofed cloths for aeroplanes. They are all of single texture, and are made in two grades in the light weight, three grades in the extra light weight, and one grade in the special weight. The light and special weight cloths are 42 ins. wide, while the extra light cloth is 48 ins. in width. The light weight cloths are rubbered on one side only, and weigh $3\frac{7}{8}$ ozs. per sq. yd. Another with rubber on both sides weighs $5\frac{1}{8}$ ozs. per sq. yd. The special cloth is woven of very strong fabric, and has one layer of rubber; it weighs $4\frac{1}{4}$ ozs. per sq. yd. The extra light weight cloth with one layer of rubber weighs only $2\frac{3}{8}$ ozs. per sq. yd., while with two layers of rubber it weighs $3\frac{1}{2}$ ozs.

The balloon cloths are, of course, altogether heavier, and consist of a double diagonal layer of cotton, dyed yellow with chromate of lead to prevent the rays of the sun affecting the rubber. The standard width is 42 ins., and the weight $9\frac{3}{8}$ ozs. per sq. yd., but a somewhat similar cloth is made without an inside layer or rubber weighing $9\frac{1}{8}$ ozs. per sq. yd. There are also straight-thread cloths weighing 9 ozs. per sq. yd. In the French Government tests of the fabric used by them a tensile

Club House at Shellbeach Flying Ground.

The Committee of the Aero Club are proposing to take over Muscle Manor for a Club House on the flying ground. In order that this may be effected, and in view of the very large expenditure which has already been made at Shellbeach, the Committee appeal to the Members for special subscriptions for this purpose. The Golf Course will be taken over for the use of Members, together with the shooting rights extending over 1,000 acres.

The following sums have already been promised:—

Frederic Coleman, £10; Frank McClean, £10;
 H. Massac Buist, £2 2s.

Erection of Sheds.—Members wishing to erect sheds at Shellbeach are requested to apply to the Secretary, who will supply all information.

Members visiting the flying ground are requested to have with them their membership cards, as strict instructions have been given to admit only Members to the flying ground.

Railway Arrangements.—The following reduced fares have been arranged with the railway company for members visiting Shellbeach:—

1st Class return, 8s.; 2nd Class return, 6s. 6d.; 3rd Class return, 5s.

Tickets are available for one month from date of issue.

Members desiring to avail themselves of these reduced fares are required to produce vouchers at the booking offices. Vouchers can be obtained from the Secretary of the Aero Club. Trains leave Victoria, Holborn, or St. Paul's.

For the convenience of members, the best train is the 9.45 a.m. from Victoria, arriving at Queenborough 10.55. At Queenborough change to the Sheppey Light Railway for Leysdown (Shellbeach), which is $\frac{3}{4}$ mile from the flying ground.

HAROLD E. PERRIN, Secretary.

166, Piccadilly, W.

⊕ ⊕

AEROPLANE FABRIC.

strain of 840 kilograms per metre both in the warp and weft is imposed, test pieces measuring 5 centimetres wide by 20 centimetres long being taken. As a test of impermeability a disc of 25 mm. in diameter is crumpled in the hands and then placed in the frame of a hydrogen gas cylinder, so as to be submitted to a pressure of 30 mm. of water for 24 hours. The loss is measured in degrees, each degree representing a loss of 1 cubic decimetre per sq. metre of area. In order to pass the test the leakage must not exceed 10 degs. In the first trial of the Hutchinson cloth the leakage was 3 degs., in the second 5 degs., in the third 4 degs., and in the fourth 3 degs.

⊕ ⊕ ⊕ ⊕

"Chains and Wheels Complete."

LAST week in the advertisement on the front cover, of the Coventry Chain Co., by a printer's error the words "Chassis and wheels complete" should have read "Chains and wheels complete." No doubt, the Coventry Chain Company's goods being so well known, our readers would at once detect the slip, but we mention it specially to make doubly sure.

SOME NOTABLE DIRIGIBLES, 1783-1908.

Table compiled by Prof. A. Badau, of the Vienna Technical College.

Date.	Name.	Country of Origin.	Envelope.				Engine.			Propeller.					Steering.		Ballonette.
			Length.	Dia-meter.	Volume.	Shape.	h.p.	r.p.m.	Type.	No.	Dia-meter.	r.p.m.	Blades.	Drive.	Elevator.	Rudder.	
1783	Meusnier ...	—	—	—	9900		—	—	Men	3	—	—	—	—	—	I	I
1858	Giffard No. 1 ...	—	44	12	2500		3	300	Steam	1	3'4	110	3	Direct	—	I	—
1855	" 2 ...	—	70	10	3200		3	300	"	1	3'4	110	3	"	—	I	—
1870	Dupuy de Lôme ...	F	36'1	14'84	3454		3	25	8 men	1	9	25	4	"	—	I	I
1872	Hähnlein ...	G	50'4	9'2	2408		3'6	90	Gas	1	4'6	90	4	"	—	I	I
1883	Tissandier ...	F	28	9'2	1000		1'5	120	Electric	1	3	120	2	Gear	—	I	I
1884	Renard-Krebs ...	F	50'42	8'4	1864		8'5	3600	"	1	7	46	2	"	I	I	I
1897	Schwarz ...	G	47'5	12	3697		12	480	Gas	3	2'75	480	2	Belt	I screw	2 screws	—
1898	Santos Dumont No. 1	F	25	3'5	180		1'75	1200	Petrol	1	1	1200	2	Direct	—	I	I
1899	"	3 F	20	7'5	500		2'5	1200	"	1	0'8	1200	2	"	—	I	—
1900	"	4 F	39	5'1	420		7	—	"	1	4	100	2	Gear	—	I	I
1900	"	5 F	33	5	550		16	1600	"	1	4	{ 140 } 200	2	"	—	I	I
1900	Zeppelin No. 1	G	128	11'65	11300		14'7 x 2	700	"	4	1'15	1100	{ 4 } 3	Bevel	I	I	—
1901	Santos Dumont No. 6	F	33	6	630		16	1200	"	1	4	200	2	Gear	—	I	I
1901	"	7 F	60	7	1257		60	?	"	1	—	—	2	"	—	I	I
1901	"	9 F	15'12	5'2	216		3	1100	"	1	3	200	2	"	—	I	I
1901	"	10 F	48	8'5	2010		20	1500	"	1	—	—	2	"	—	I	2
1901	Deutsch de la Meurthe	F	60	8	2000		60	900	"	1	7'5	120	2	"	—	I	—
1901	Rozé ...	F	45	7'5	2800		20	?	"	{ 2 } 2	{ 3'4 } 3'4	{ 300 } 1	{ 1 } 1	Bevel	4	I	?
1901	Bradsky ...	G	34	6'1	850		16	—	"	1	4	350	2	Friction	I screw	I	—
1902	Severo ...	S	30	12	2400		{ 24 } 16	{ }?	"	{ 1 } 1	{ 6 } 4	{ 150 } 2	2	Chain	—	I	—
1902	Lebaudy (Julliot)	F	58	9'8	2284		40	1200	"	2	2'44	{ 800 } 1100	2	Bevel	I	I	I
1902	Spencer ...	E	23	6	1860		23'5	—	"	1	3	900	2	Gear	—	I	I
1904	Julliot "Patrie"	F	60	10'8	3250		70	1000	"	2	2'5	1100	2	Bevel	I	I	—
1905	Zeppelin No. 2	G	128	11'70	11430		85 x 2	—	"	4	—	900	3	"	I	I	—
1906	"Ville de Paris"	F	62	10'5	3200		70	900	"	1	6	180	2	"	I	I	I
1906	Comte de la Vaulx	F	32'5	6'5	720		16	1500	"	1	3	900	2	"	—	I	I
1906	Parseval No. 1	G	48	8'7	2500		90	1000	"	1	3'5	1000	4	Chain	—	I	2
1907	Santos Dumont No. 16	F	21	3	90		7 x 2	?	"	2	1'15	?	2	Direct	I	I	I
1908	Zeppelin No. 3	G	136	13	15000		110 x 2	1100	"	4	—	900	3	Bevel	I	I	—
1908	" 4	G	136	13	15000		114 x 2	1100	"	4	—	900	3	"	I	I	—
1908	Julliot "La Republique"	F	61	10'8	3700		55	—	"	2	—	700	2	"	I	2	I
1908	Malécot ...	F	33	7'3	1054		30	—	"	1	3'8	400	2	"	Aeroplane	I	I
1908	Clement-Bayard	F	46'25	10'58	3500		105	380	"	1	5	380	2	Direct	I	I	2
1908	Parseval No. 2	G	58	9'5	3800		114	1100	"	1	3'5	{ 250 } 300	4	Bevel	I	I	2
1908	Major Gross ...	G	40	12	1800		—	—	"	2	—	—	3	Chain and bevel	—	I	I

In the above helpful table some of the latest airships are not included. These are:—

France.	Germany.	Durrkopf.
Liberté.	Gross II.	Kælu.
Ville de Nancy.	Gross III.	Harburg.
Renard.	Zeppelin.	Erlslöh.
In construction—	Parseval III.	Clouth.
Clement-Bayard II.	In construction—	Gans.
Egalité.	Siemens.	
Transaerien I, II, III, IV	Schulte.	

Other Countries (some in construction):—England, 1; Japan, 1; Russia, 1 (French built); Italy, 1 (5 in construction); United States, 3; Belgium, 2; Austria, 2.

Note.—G = Germany. F = France. S = Spain.

GERMAN ARMY AIRSHIPS.

ACCORDING to an interview with General von Heeringen, the new German Minister of War, published in a German paper last week, the increase in the number of airships for the Army was limited by the unfavourable financial condition of the Empire. Should the expenditure on airships be extraordinary, economies would have to be made in other fields, which was not desirable. He thought all three types had their justification, the rigid Zeppelin having advantages for long flights, while the Gross and Parseval types were better adapted for reconnaissance work in the field.

AVIATION NOTES OF THE WEEK.

Mr. Cody's Further Progress.

BAD weather during last week prevented Mr. S. F. Cody from doing any flying before Saturday last, when he made a couple of flights. On the first he was accompanied by his youngest and on the second by his eldest son, and the latter, who had with him a camera, endeavoured to secure snapshots of the crowd and the country passed over. On coming to rest after this second flight, the petrol tank was found to be leaking, and from investigation it seemed that a sharp flint had probably been thrown up by one of the wheels when alighting. Wooden propellers had been fitted in place of the metal ones previously used, and Mr. Cody thinks that they are an improvement.

In recognition of his services to aeronautics, the Aeronautical Society of Great Britain have awarded their silver medal to Mr. Cody.

Guildford Encouraging Aviation.

APPARENTLY Guildford anti-motoring ideas do not extend to aviation, for we hear that the Town Council are actually helping a prospective flyer by lending him an aerodrome. Mr. H. Fentum Phillips, who has been experimenting with propellers for twenty years, proposes building an aeroplane driven and partly lifted by specially designed propellers, and he has received permission to make his trial flights over the Corporation's sewage farm, which has an area of 250 acres. Although the land is rough, it has the advantage of being quite private and sheltered by trees.

A Bleriot at Newcastle.

GOSFORTH PARK, famous for its horse-race meeting, when Newcastle goes holiday-making for a week, also promises to become famous as an aerodrome. It is there that Councillor Parkinson, of Blackpool, intends to experiment with the Bleriot flyer which he has recently purchased.

Another London to Manchester Entrant.

THERE are now three well-known entrants for the £10,000 *Daily Mail* prize for a flight from London to Manchester, as M. Lefebvre, who made such good performances in Holland and this week at Rheims, has sent in his entry. The other entrants who have, so to speak, "won their spurs," are M. Paulhan and M. Bleriot.

A Bleriot-Latham Race near London.

SHOULD the negotiations be carried to a successful issue, there is in prospect for Londoners the possibility of seeing an exciting race between Mr. Latham and M. Bleriot on their monoplanes. The proposal emanates from the Wembley Park Co., working with the Aeroplane Club, and has been approved by M. Bleriot, but Mr. Latham has referred the matter to the Antoinette Co., who are willing to consider terms. It is suggested that the stakes should be £5,000, the winner to take £4,000, while the match would consist of five flights, the details to be drawn up by a committee. If the idea is taken up, it may be extended and competitions organised for British machines.

Activity at Dagenham.

ALTHOUGH the members of the Aeronautical Society, who visited the grounds at Dagenham on Wednesday week, were not entertained with any actual flying, they were able to see Mr. Neale's baby monoplane, which with

the aviator on board only weighs 400 lbs. Mr. Moreing's big biplane of the Voisin type, which is fitted with a gyroscopic arrangement, was also on view. Great interest was taken in the partly completed garage which is being erected under Mr. Healey's supervision to house a large dirigible in the near future.

Accident to Mr. A. E. George.

ON Saturday last, while Mr. A. E. George was experimenting with his Voisin biplane at Shellbeach, now re-named "G. and J.L.," he met with a mishap, which caused him to abandon flying for a few days. He had been testing the machine for two or three days previously, and on Saturday last started off to make a flight. The machine rose all right but for some reason it tipped forwards and the front of the aeroplane striking the earth suddenly, Mr. George was thrown out. At the moment he seemed none the worse for the spill, and got up and walked round his machine, but a short time afterwards he lost consciousness. He was, however, all right the next day, and went off to Rheims to witness the racing there.

Banquet to M. Bleriot.

FROM a statement issued to the general Press, we learn that the Aeroplane Club have arranged a dinner at the Savoy Hotel on September 15th in honour of M. Bleriot. It is stated that the Lord Mayor of London will preside, and that the other guests of honour will include Madame Bleriot, MM. Latham and Anzani, and Lieut. Shackleton. The gold cup offered by Capt. Windham for a cross-Channel flight is to be presented during the evening.

A Cross-London Prize.

NO less a prize than a one hundred guinea cup awaits the intrepid British aviator who first crosses the Metropolis from north to south or *vice versa*. The only conditions the donors, Messrs. P. B. Burgoyne and Co., attach to their offer are: (1) that every part of the machine be of British manufacture, (2) that the aviator be a subject of the King, and (3) that the Thames be crossed between Tower Bridge and Westminster.

Fournier Flies 41 Mins.

JUST before going to Rheims, M. Fournier was successful in making a splendid flight at Chalons, staying aloft for 41 mins., and only coming down because of the darkness coming on. Considering M. Fournier's weight of 16½ stone, this indicates that "heavy weights" are not necessarily debarred from flying.

Orville Wright in Germany.

ON Thursday week Orville Wright, accompanied by his sister, quietly arrived in Berlin, and as the time of their arrival had been kept strictly secret, only Capt. Hildebrandt and a few journalists were present at the station to greet them. After inspecting the two aeroplanes which have been constructed at Tegel by the French makers, Orville suggested a number of little alterations and adjustments to be carried out before he would attempt to fly. He estimated that he might begin to fly about Monday next. Later in the day he viewed the Templehof parade ground, and expressed the opinion that it was the finest flying ground he had so far seen. It is about two miles long by one mile wide, and is unencumbered by trees.

New Recruit's Short Flights.

ALTHOUGH a strong wind was blowing on Wednesday week, Busson had the "Witzig II" machine out at Issy, and made a long "jump" of 500 metres. In making a turn the aeroplane came down on one of the wheels very heavily, and was damaged slightly.

Hanriot Monoplane.

ANOTHER driver of racing motor cars who is taking up aviation is Hanriot, who has designed and constructed a monoplane which he hopes to be flying at Chalons shortly. His machine has a span of 10 metres, and the main planes being 3 metres across at the widest part have a lifting surface of 24 sq. metres. Balancing is effected by a tail giving 8 sq. metres lifting surface, while the motor is of 40-h.p. Hanriot has entered for the Boulogne-Folkestone prize and other events open in September.

Brescia Meeting.

It was a strange coincidence that both at Rheims and Brescia, a cyclone should have swept the flying grounds as a sort of preliminary to the meeting. The storm at Brescia took place early on the morning of the 19th inst. and although a good deal of damage was done in the way of tents and such temporary buildings being blown down, the result was not very serious. The Committee immediately met and arranged for everything to be set right, so that when the aviators go to Brescia next week they will find everything ready. Lieut. Calderara's Wright flyer suffered a good deal, several of the stays, &c., being broken, but these will be quickly repaired. Fortunately the motor and propellers were uninjured.

The entries have come in fairly well, and at present total to exactly twelve, including two from M. Bleriot,

Wright machines by Lieut. Calderara and M. Lefebvre, Voisins by Itala and M. Anzani, Glenn Curtiss' flyers, an R.E.P. monoplane from M. Guffroy, a Cobiainchi-Miller biplane, a Faccioli triplane, a "helicoptane" and a monoplane from Sig. Moncher. Entries close on Monday next.

There are four International events; the Grand Prix of Brescia (£2,000) for the best time over 100 kiloms.; a height competition (£400); a passenger-carrying contest (£200); and a starting test (£200). In the last the winner will be the aviator who gets his machine in the air soonest after being given the word to go. Italian aviators will, in addition, have an opportunity of competing for the Oldofredi prize of £120 for the first to make a flight of one kilom. on the Brescia ground, as well as for the *Corriere della Sera* prize for the longest distance flown. The course measures 10 kiloms. round. A speed contest between dirigibles for a prize of £2,000 has also been arranged.

Although the meeting is scheduled to last from September 5th to 20th, the official programme does not include flying on every day, and the arrangements are that attempts for the above-mentioned prizes can only be made on the 5th, 8th, 12th, 19th, and 20th Sept.

It is practically certain that the King of Italy will attend one day to witness the flying.

Up-to-date Sciences Combine.

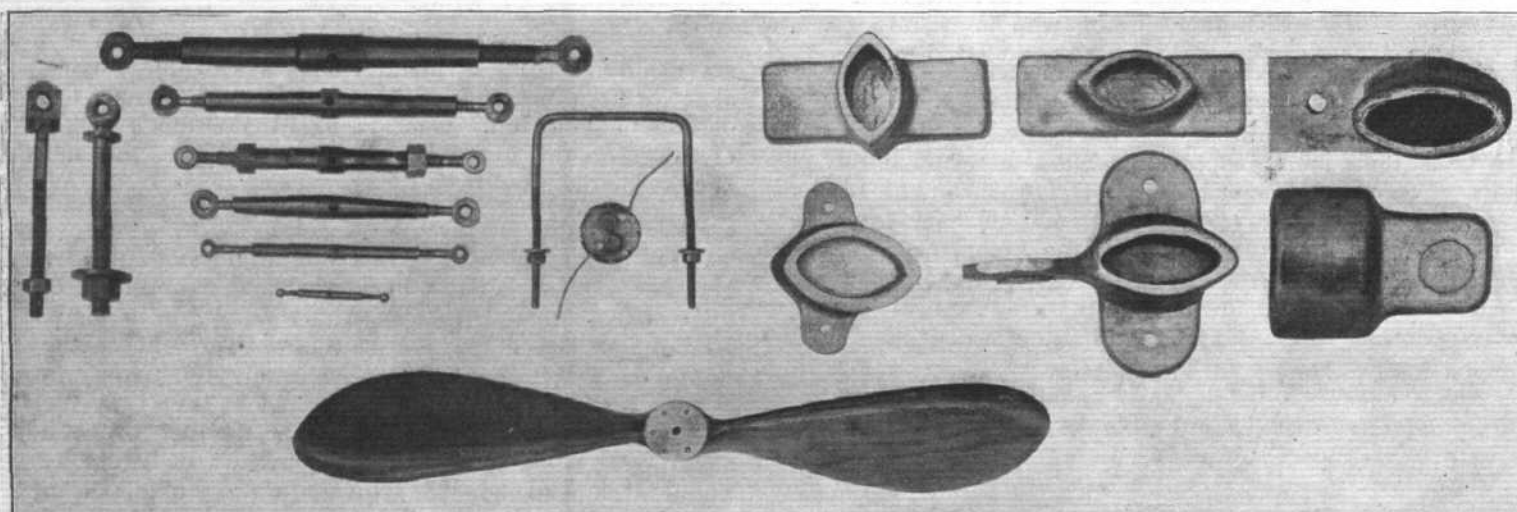
A STRIKING conjunction of two of the most modern scientific developments was seen in the *Daily Mirror* on Tuesday, when one of the photographs transmitted by the Korn Telautograph apparatus depicted the accident to the "Clement-Bayard" of the day before. The actual transmission of the photograph from Paris to London occupied six minutes.

SOME AEROPLANE FITTINGS.

WE have received from Messrs. Handley Page, Ltd., the accompanying photographs of useful accessories which they are supplying to those engaged in the construction of aeroplanes.

make a propeller in wood, a photograph of which is also shown.

The three-sided fixing seen in the middle is similar to that used on the Bleriot monoplane, and in the centre of



These include, as will be observed, a full range (on the right) of aluminium sockets for fastening struts to main spars, and an equally complete range (on the left) of wire stretchers and eyebolts. Messrs. Handley Page also

this is the Portway wire strainer to which attention was recently drawn in our correspondence columns. In connection with each propeller, Messrs. Handley Page guarantee the thrust that will be obtained with a given horse-power.

AIRSHIP NEWS.

The British Naval Dirigible.

CONSIDERABLE progress is being made in connection with the huge shed which Messrs. Vickers, Sons and Maxim are having built on the Cavendish Dock at Barrow to accommodate the dirigible, on Zeppelin lines, which is in course of construction for the Admiralty. This dock, which has an area of 146 acres, is just at the mouth of the Walney Channel, and the airship will only have to cross a narrow bank before it will be over the Irish Channel. It is interesting to note that the envelope portion of the work is being carried out by Messrs. Short Brothers.

Disaster Overtakes the Wellman Airship.

ON the 15th inst. Mr. Wellman set out from Spitzbergen in his airship to reach the North Pole, but he had only gone a couple of hours when an accident necessitated an immediate return. It will be remembered that the trail ropes are in the form of canvas bags used for storing provisions. One of these, hanging from the after end of the ship, broke away and rendered the craft unmanageable. For some time the crew, consisting of Mr. Wellman, Mr. Vaniman, Mr. Louis Loud and Mr. N. Popoff, endeavoured to rearrange the cargo so as to balance the ship, but their efforts proving futile, they had perforce to return. They were sighted by the "Fram," an Arctic exploring steamer, and towed back to their station in Virgo Bay. Then, as far as can be gathered from the cablegrams, the airship tore from her moorings and eventually fell into the sea.

Mr. Wellman announces that he will make the attempt with a larger airship next year, and is already having the airship shed enlarged to receive it.

"Zeppelin III" Voyage to Berlin.

GREAT preparations have been made in the German capital for the reception of "Zeppelin III," where it is due to arrive from Friedrichshafen to-day, Saturday. The Kaiser and the Imperial Family are to wait for the airship's arrival on the Templehof ground, and it was the Kaiser's wish that Count Zeppelin, in view of his recent operation, would join the Imperial party there. The aged inventor, however, has a great desire to greet his Emperor from the deck of his latest craft, and has, therefore, received permission to go on board at Bitterfeld for the last stage of the journey.

A Contretemps with "Clement-Bayard."

AFTER successfully carrying out a series of tests previous to purchase by the Russian Government, the "Clement-Bayard" airship was placed *hors de combat* by an unfortunate accident on Monday morning. The dirigible had been in the air for about three hours, manœuvring over Sartrouville and Neuilly, when in view of the rising wind it was decided to land. Forty men caught hold of the guide-ropes, and were hauling the dirigible down when one was hoisted off his feet. Someone shouted to him to "Let go!" and the others apparently took it as a general order. On being thus released, the airship ascended rapidly and was carried towards the Seine, and M. Capazza, who was in charge, decided that it would be best to come down on the water. He therefore opened the valve and the airship settled down between the Maisons-Laffitte railway bridge and Sartrouville bridge, those on board saving themselves by

swimming ashore. The car was submerged and the envelope was cut in one or two places to allow the gas to escape, but otherwise the airship was very little damaged, and it is hoped that she will be ready to make another trip in a fortnight's time.

During the flight last Monday the airship rose to a height of 1,550 metres, which is claimed to be a record altitude for a dirigible. The crew consisted of M. Capazza, Col. Nach (a Russian Army officer), and the mécanicien Delasser.

Since her first flights last October a new envelope has been fitted, of the same dimensions as the original one.

Italian Military Airships.

DURING the past few days the Italian military dirigible has made several trips, and on the 20th inst. the aeronauts had an exciting experience. The dirigible was manœuvring over Bracciano Lake at a height of about 600 ft. when it began to fall, and despite all the efforts of the six men on board the descent could not be checked. It gradually drifted ashore and was towed to its shed, when it was found that the valves were defective and had allowed the gas to escape. Although all the ballast was thrown overboard, the weight of the occupants of the car was too much for the remaining gas to sustain. On the previous day the airship was tried over the lake for more than an hour, and on Monday, after being fitted with a new propeller and new gas-valves, it flew for 50 mins. at a height of about 1,800 ft.

Spanish Military Dirigible.

ENGINEER officers of the Spanish Army are anxiously awaiting at Meaux the final trials of the military dirigible "España," which has been built by the Société Astra for the Spanish Government. It is promised for delivery on September 25th, and it may be sent to Melilla. In that event it will be the first modern dirigible to have been used in actual warfare. The motor is of 300-h.p., and the car is arranged to carry twelve persons.



N.E.C. BRITISH-BUILT FLIGHT ENGINES.

VERY soon now the New Engine Motor Co. expect to be delivering the first of their flight engines, two of which, of 25-h.p. each, are on order for aviators who anticipate attempting the Channel crossing, whilst another of 12-h.p. is being secured by Mr. Jose Weiss. Considerable interest attaches to the N.E.C. attempt to solve the problem of the flight engine by the development of the two-stroke motor, and there is no doubt that practical performances of these engines will be watched with the closest attention by all interested in the movement.

The sizes in which they are building these engines include, as our readers know, a twin-cylinder model of 12-h.p., a 4-cyl. model of 25-h.p., and a 6-cyl. model of 35-h.p., these ratings being the minimum guaranteed power.



A Huddersfield Development.

MR. C. BINKS, we learn from Huddersfield, is developing the aeroplane business, and has secured some fine premises in that city where he hopes very shortly to have planes ready for sale.

